

What is claimed is:

1. A resin intermediate comprising the reaction product of:
a glycol component and a difunctional sulfomonomer, wherein the resin intermediate formed is substantially free of unreacted difunctional sulfomonomer particles.
2. The resin intermediate of claim 1, wherein the resin intermediate is in the form of a powder.
3. The resin intermediate of claim 1, wherein said glycol is selected from the group consisting of neopentyl glycol, 2-butyl-2-ethylpropanediol, 2,2,4-trimethyl-1,3-pentanediol, and hydroxypivalyl hydroxypivalate and said difunctional sulfomonomer is selected from the group consisting of 5-(sodiosulfo)-isophthalic acid, 5-(lithiosulfo)-isophthalic acid, and methyl esters thereof.
4. The resin intermediate of claim 1, wherein said glycol component is present in an amount ranging from about 75 mole percent to about 85 mole percent and said difunctional sulfomonomer is present in an amount ranging from greater than about 15 mole percent and up to about 25 mole percent.
5. The resin intermediate of claim 4, wherein said glycol component is present in an amount ranging from about 78 mole percent to about 83 mole percent and said difunctional sulfomonomer is present in an amount ranging from about 17 mole percent to about 22 mole percent.
6. A process for forming a resin intermediate comprising the steps of:
forming a slurry of a glycol component, a difunctional sulfomonomer and

water; and

reacting said slurry to form a resin intermediate, wherein the resin intermediate formed is substantially free of unreacted difunctional sulfomonomer particles.

7. The process according to claim 6, wherein said reacting step is conducted at an elevated reaction temperature until a clear solution is formed and the resin intermediate has an acid number of less than about 10 mg KOH/g.

8. The process according to claim 6 further comprising the steps of:
combining about 75 to about 85 mole percent of a glycol with about 15 to about 25 mole percent of a difunctional sulfomonomer, based on the total moles of diol and sulfomonomer, and an acid catalyst;
adding a sufficient amount of water to the combination to form a slurry;
heating said slurry, with agitation, to a first temperature to remove water; and
heating said slurry to a second temperature to form a polyester resin intermediate having an acid number less than about 10 mg KOH/g.

9. The process of claim 8, wherein said glycol is selected from the group consisting of neopentyl glycol, 2-butyl-2-ethylpropanediol, 2,2,4-trimethyl-1,3-pentanediol, and hydroxypivalyl hydroxypivalate and said difunctional sulfomonomer is selected from the group consisting of 5-(sodiumsulfo)-isophthalic acid, 5-(lithiosulfo)-isophthalic acid, and methyl esters thereof.

10. The process of claim 8, wherein said glycol is present in an amount of about 78 to about 83 mole percent and said difunctional sulfomonomer is present in an amount ranging from about 17 to about 22 mole percent.

11. The process of claim 8, wherein said glycol is present in an amount of about 81 mole percent and said difunctional sulfomonomer is present in an amount of about 19 mole percent and the resin intermediate has an acid number less than about 5 mg KOH/g.

12. A hydroxyl-functional, water-dispersible polyester comprising the reaction product of:

(a) about 8 to about 16 mole percent of a polyester resin intermediate substantially free of unreacted difunctional sulfomonomer, comprising the reaction product of:

(i) about 75 to about 85 mole percent of a glycol, based on the total moles of (i) and (ii); and

(ii) about 15 to about 25 mole percent of a difunctional sulfomonomer, based on the total moles of (i) and (ii);

(b) about 35 to about 55 mole percent of at least one polyol; and

(c) about 30 to about 50 mole percent of a diacid.

13. The hydroxyl-functional, water-dispersible polyester of claim 12, wherein the hydroxyl-functional, water-dispersible polyester has a hydroxyl number ranging from about 50 mg/KOH to about 200 mg/KOH and an acid number less than about 30 mg KOH/g.

14. A process for preparing a hydroxyl-functional, water-dispersible polyester comprising the step of heating, with agitation, a combination of:

(a) about 8 to about 16 mole percent of a resin intermediate which is substantially free of unreacted difunctional sulfomonomer, comprising the reaction

product of:

(i) about 75 to about 85 mole percent of a glycol, based on the total moles of (i) and (ii); and

(ii) about 15 to about 25 mole percent of a difunctional sulfomonomer, based on the total moles of (i) and (ii);

(b) about 35 to about 55 mole percent of at least one polyol; and

(c) about 30 to about 50 mole percent of a diacid component;

under conditions sufficient to produce a hydroxyl-functional, water-dispersible polyester having a hydroxyl number ranging from about 50 mg/KOH to about 200 mg/KOH and an acid number less than about 30 mg KOH/g.

15. The process of claim 14, wherein component (a) is present in an amount ranging from about 10 to about 14 mole percent, component (b) is present in an amount ranging from about 40 to about 50 mole percent, and component (c) is present in an amount ranging from about 40 to about 46 mole percent.

16. A zero-VOC, ambient-cure, organic-solvent-free dispersion comprising:

(a) about 45 to about 70 weight percent water; and

(b) about 30 to about 55 weight percent of a resin composition comprising:

(i) about 50 to about 90 weight percent of the hydroxyl-functional, water-dispersible polyester of claim 12; and

(ii) about 10 to about 50 weight percent crosslinking agent.

17. The dispersion of claim 16, wherein the crosslinking agent is a hydrophilic isocyanate.

18. An article coated by the coating composition of claim 16.